DEPARTMENT OF THE AIR FORCE
Eglin Air Force Base, Florida

CONSTRUCTION OF NEW ENERGETICS BUILDINGS AT THE HIGH EXPLOSIVE RESEARCH AND DEVELOPMENT FACILITY (HERD)

FINAL ENVIRONMENTAL ASSESSMENT

RCS 02-427, 02-1102

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FINDING OF NO SIGNIFICANT IMPACT
FOR
CONSTRUCTION OF NEW ENERGETIC BUILDINGS AT THE HERD FACILITY
EGLIN AIR FORCE BASE, FLORIDA
RCS 02-427, 02-1102

Pursuant to the President's Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 Code of Federal Regulations 1500-1508), and 32 CFR Part 989, the Department of the Air Force has conducted an Environmental Assessment (EA) of the probable environmental consequences for the construction of new Energetics Buildings at the High Explosive Research and Development (HERD) Facility on Eglin Air Force Base (AFB), Florida.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action: The Proposed Action is for the Air Force Research Laboratory Munitions Directorate (AFRL/MNML) to construct eight buildings on Eglin AFB within the existing High Explosive Research and Development (HERD) Facility compound. Approximately 31,000 square feet of building area would be constructed over a five-year period. The purpose of this project is to support Advanced Energetics by providing the scientific and engineering research infrastructure required to formulate, analyze, produce, test, and evaluate new explosive mixtures created using nano-sized components. This project would also provide the infrastructure needed to develop and evaluate the manufacturing equipment and methods needed to produce explosives containing nanoenergetic materials on a commercial scale.

Alternative Action 1: Under Alternative 1, there would be a consolidation of the eight buildings into six. The total area of the buildings would still be approximately 31,000 square feet.

No Action Alternative: Under the No Action Alternative, no new Energetics buildings would be constructed on Eglin AFB.

ANTICIPATED ENVIRONMENTAL EFFECTS

Anticipated environmental effects involving air quality, noise, soils, water quality and wetlands, biological resources, and IRP sites are discussed in Chapter 4 of the EA. Environmental analysis identified no significant impacts to human health or the environment.

MANAGEMENT REQUIREMENTS

Management requirements are described in Chapter 5 of the EA. The need for these requirements was identified by the environmental analysis and was developed through cooperation between the proponent and the interested parties involved in the proposed action.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and the Environmental Assessment, I conclude that the proposed construction of eight buildings within the HERD Facility compound on Eglin AFB, Florida, will not have a significant adverse impact of a long-term nature to the quality of the human or natural environment. This analysis fulfills the requirements of the National Environmental Policy Act, the President's Council on Environmental Quality regulations, and 32 CFR 989. Therefore, an environmental impact statement is not required and will not be prepared.

30 June 03
DATE

JAMES D. SIRMANS, GM-15
Director, Environmental Management

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LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

96 AMDS/SGPB	Bioenvironmental Engineering Flight
96 CEG/CESX	Civil Engineering Readiness Flight
AAC	Air Armament Center
AAC/EMCE	Air Armament Center/Environmental Engineering Branch
AAC/EMH	Air Armament Center/Historic Preservation Division
AAC/EM-PAV	Air Armament Center/Environmental Public Affairs
AAC/EMSN	Air Armament Center/ Natural Resources Branch
AAC/EMSP	Air Armament Center/ Environmental Analysis Branch
AAC/JAV	Air Armament Center/Legal Division
AAC/SEOG	Air Armament Center/Ground Safety
AAC/SEU	Air Armament Center/Range Safety
AF	Air Force
AFB	Air Force Base
AFI	Air Force Instruction
AFRL	Air Force Research Laboratory
AFRL/MN	Air Force Research Laboratory/Munitions Directorate
AICUZ	Air Installation Compatibility Use Zones
ANSI	American National Standards Institute
AOC	Area of Concern
AQCR	Air Quality Control Region
BMPs	Best Management Practices
CAA	Clean Air Act
CEC	Cation Exchange Capacity
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dB	Decibel
dBA	A-Weighted Decibels
DoD	Department of Defense
DOT	Department of Transportation
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EQSD	Explosive Quantity Safety Distance
ESA	Endangered Species Act
F	Fahrenheit
FAA	Federal Aviation Administration
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FWC	Florida Fish and Wildlife Conservation Commission
FICON	Federal Interagency Committee on Noise
FICUN	Federal Interagency Committee on Urban Noise
FNAI	Florida Natural Areas Inventory
FY	Fiscal Year
g/cm^3	Grams per Cubic Centimeter
HERD	High Explosive Research and Development
HUD	Housing and Urban Development
Hz	Hertz
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
km	Kilometer
L_{dn}	Day-Night Average Sound Level
L_{eq}	Equivalent Sound Level
$L_{eq(24)}$	24-Hour Equivalent Noise Level
L_{max}	Maximum Sound Level
mg/L	Milligrams per Liter

LIST OF ACRONYMS ABBREVIATIONS, AND SYMBOLS CONT'D

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFA	No Further Action
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
Pb	Lead
PCE	Perchloroethylene
PM_{10}	Particulate Matter with an Aerodynamic Diameter Less Than or Equal to 10 Microns
$PM_{2.5}$	Particulate Matter with an Aerodynamic Diameter Less Than or Equal to 2.5 Microns
POI	Point of Interest
ppm	Parts per Million
RCW	Red-cockaded Woodpecker
ROI	Region of Influence
SEL	Sound Exposure Level
SIP	State Implementation Plan
SO_2	Sulfur Oxides
$\mu g/m^3$	Micrograms per Cubic Meter
URBEMIS	Urban Emissions Model
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VA	Veteran's Administration
VOC	Volatile Organic Compound

1. PURPOSE AND NEED FOR ACTION

1.1 PROPOSED ACTION

This project proposes the construction of a total of eight new buildings to support Air Force Research Laboratory (AFRL) high explosives research and development at Eglin Air Force Base (AFB), Florida. The regional setting for the proposed action is shown in Figure 1-1. The purpose of this project is to support Advanced Energetics by providing the scientific and engineering research infrastructure required to formulate, analyze, produce, test, and evaluate new explosive mixtures created using nano-sized components. This project would also provide the infrastructure needed to develop and evaluate the manufacturing equipment and methods needed to produce explosives containing nanoenergetic materials on a commercial scale. These novel energetic compounds promise dramatic increases in the amount of energy delivered per unit volume over the conventional explosives currently in use throughout the armed services. AFRL/MN is collaborating with several government agencies and academia to develop, characterize, and produce new energetic formulations based on nano-sized constituent particles. Over the next several years, the Munitions Directorate is expecting to attract dozens of scientists and collaborators to help mature the nanoenergetic technology. Currently, AFRL/MN has been conducting very limited testing and evaluation of potential nanoenergetic components at the High Explosive Research and Development (HERD) Facility.

1.2 NEED FOR PROPOSED ACTION

While the testing has been productive, the advanced energetics team is rapidly reaching the limit of the research capabilities provided by our available infrastructure. The existing buildings were constructed in the 1960s, and the environmental controls, space, and electrical power are insufficient or inappropriate to introduce new materials or accommodate testing on a scale needed for the nanoenergetics program. The small size of these particles could potentially pose breathing hazards, requiring that laboratories testing these materials have separate environmental controls to ensure that the materials are not spread throughout the lab space. Additionally, to reduce expense and improve efficiency, it is necessary to conduct these tests in the HERD complex, at or near the old buildings.

1.3 OBJECTIVE OF THE PROPOSED ACTION

The objective of the Proposed Action is to improve nanoenergetics research capabilities through the construction of new buildings.

1.4 RELATED ENVIRONMENTAL DOCUMENTS

There are no related environmental documents.

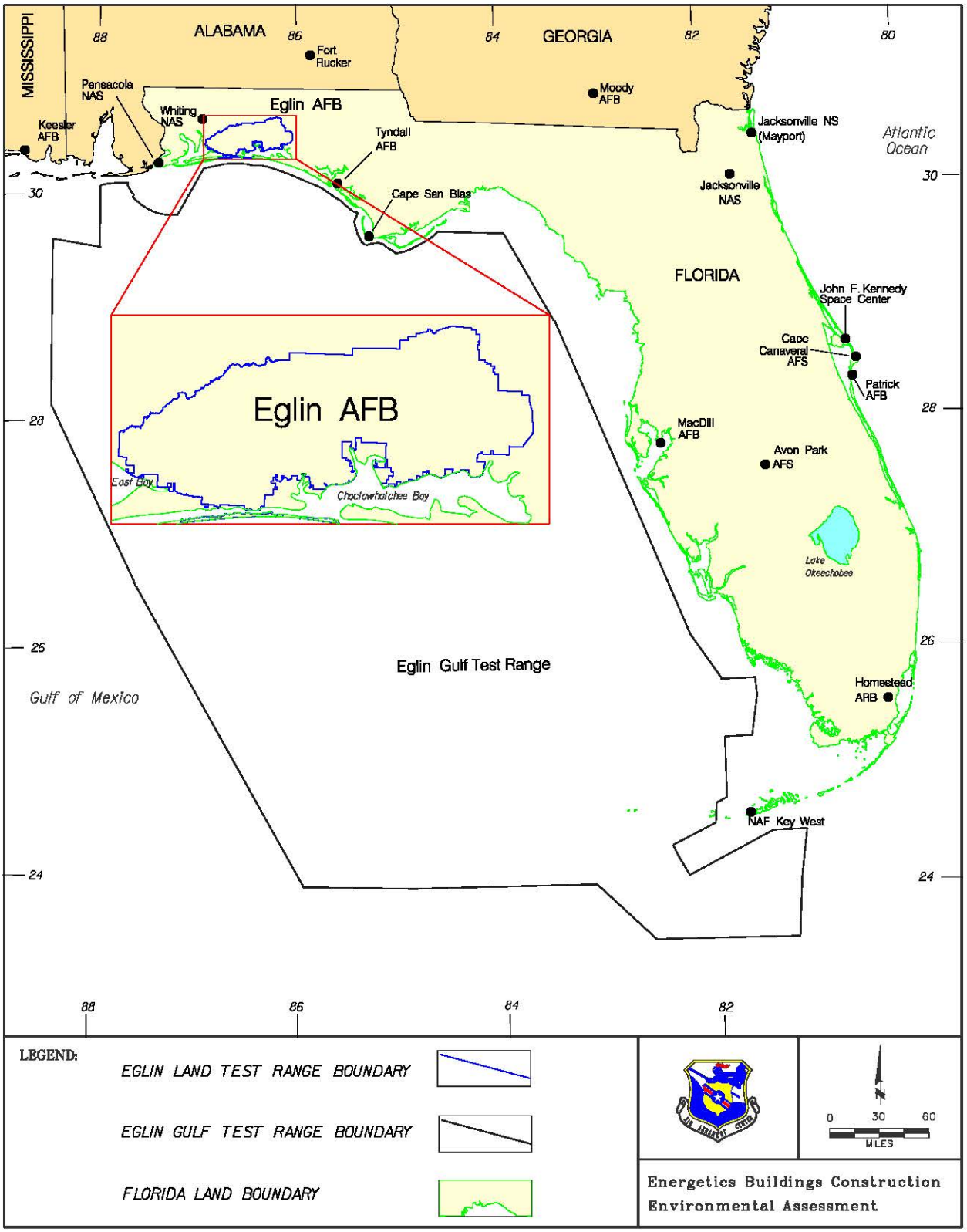

Figure 1-1. Regional Location

1.5 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

This document was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations of 1978, and 32 CFR (Code of Federal Regulations) Part 989. To initiate the environmental analysis, the proponent (AFRL/MN) submitted an Air Force (AF) Form 813 – Request for Environmental Impact Analysis – to the Air Armament Center's Environmental Management Directorate, Stewardship Division, Environmental Analysis Branch (AAC/EMSP). A review of the AF Form 813 by EMSP determined that the Environmental Impact Analysis Process (EIAP) Working Group should address the Proposed Action. The EIAP Working Group consists of representatives from the Environmental Analysis Branch (AAC/EMSP), Environmental Engineering Branch (AAC/EMCE), Natural Resources Branch (AAC/EMSN), Historic Preservation Division (AAC/EMH), Bioenvironmental Engineering Flight (96 AMDS/SGPB), Environmental Law Office (AAC/JAV), Ground Safety (AAC/SEOG), Civil Engineering Readiness Flight (96 CEG/CESX), Environmental Public Affairs (AAC/EM-PAV), and Range Safety (AAC/SEU) functions at Eglin AFB.

1.5.1 Issues Eliminated from Detailed Analysis

Based on the scope of the Proposed Action, alternatives, and preliminary analyses, the following issues were eliminated from further analysis.

Land Use

Land use would not be affected. The new buildings would be erected directly adjacent to the existing buildings within the HERD Facility. No change to surrounding land use or to current Air Installation Compatibility Use Zones (AICUZ) would occur.

Environmental Justice

Environmental justice addresses the potential for a proposed federal action to cause disproportionately high and adverse health effects on minority populations or low-income populations. Since the proposed activities would take place on a test area at Eglin AFB, and there are no anticipated impacts beyond the test area boundary, no environmental justice issues are anticipated.

Cultural Resources

Cultural resources were eliminated as an issue. No known cultural resources exist at the HERD Facility. New discoveries would be reported immediately to Eglin's Historic Preservation Division (AAC/EMH).

Safety

Safety issues were eliminated from further analysis. Safety is internally controlled through established procedures. The construction of the eight new buildings would be phased over a period of several years (Table 2-1) due to availability of program funds. Therefore, the mutual explosive quantity safety distance (EQSD) arcs of each new building should be considered. Site planners and safety personnel would accomplish this at the time the specific site location of each

new building is determined**.** Note the general proposed building locations are not located within the current EQSDs of any existing buildings (Figs 2-1, 2-2).

Hazardous Materials and Solid Waste

The issue of hazardous materials was eliminated from further analysis; however, existing Installation Restoration Program/Area of Concern sites are discussed. The HERD Facility currently has procedures in place for the handling of hazardous materials and disposal of hazardous wastes, and generation of pollutant emissions occurs in accordance with an Open Burn/Open Detonation permit. No change to current procedures or permits would occur with the Proposed Action.

The issue of solid waste was eliminated from further analysis. Construction activities would potentially generate significant amounts of solid waste such as construction debris, land clearing debris, and soil. These waste streams would be segregated at generation for recycling or disposal at a secure, permitted facility in accordance with AAC Plan 32-7, Solid Waste Management. As a result, no adverse environmental impacts are anticipated and further analysis was not warranted.

1.5.2 Issues Studied in Detail

Preliminary analysis based on the scope of the Proposed Action and Alternatives identified the following potential environmental issues warranting detailed analysis.

Noise from Construction

Heavy equipment would produce noise, particularly during site preparation.

Air Quality

Air quality could be affected by the addition of combustive by-products and dust to the air resulting from the construction and land clearing. Potential impacts would be denoted if project emission estimates, using U.S. Environmental Protection Agency (USEPA) emission factors, were to exceed 10 percent of Okaloosa County's Air Emission Inventory. Although analysis of this type is used for impact analysis to air quality in accordance with a General Conformity Rule determination, a general conformity determination does not apply to Eglin. This is because Eglin is within an attainment area with regard to USEPA air quality standards. The 10 percent criterion is used as a threshold for impact analysis for nonattainment or maintenance areas (areas that were nonattainment but now are in attainment). However, the 10 percent criterion is used here as a threshold for potential adverse impacts.

Soils

Soils at the proposed construction site are sandy and loose, and terrain is sloped or hilly in some areas. Thus erosion resulting from site preparation activities is a potential issue.

Water Quality and Wetlands

While no surface waters or wetlands are located on the proposed construction site, there is a creek and wetland area within 1,000 feet of the construction site that would potentially be subject

to site runoff. The Florida Department of Environmental Protection (FDEP) requires that construction projects greater than one acre in size obtain a National Pollutant Discharge Elimination System (NPDES) permit for stormwater runoff.

Biological Resources

Wildlife within the proposed construction site would be displaced by the proposed new buildings. Sensitive species and habitats may potentially occur within 1,000 feet of the proposed construction site.

Installation Restoration Program/Area of Concern Sites (IRP/AOC)

Because the Proposed Action involves ground disturbance activities, IRP and AOC sites near the construction site were identified to determine the potential for encountering buried debris or contaminated soil.

1.6 APPLICABLE REGULATORY REQUIREMENTS AND COORDINATION

Eglin is currently operating under a Title V air operation permit. This permit regulates all stationary air emission sources on the Eglin Military Complex. One category of emission sources regulated under the permit is the "unregulated" source category. These sources are not regulated by any specific federal or state regulation, but are regulated by the facility-wide requirements of the permit. Research and development activities that are conducted on the Eglin test ranges are included in the unregulated source category.

The total area impacted by the proposed project would be approximately three acres. A Notice of Intent to Use the General Permit for New Stormwater Discharge Facility Construction must be submitted prior to project initiation according to the Florida Administrative Code (FAC) 62-25, and the Proposed Action requires coverage under the Generic Permit for Stormwater Discharge from Construction Activities that Disturb One or More Acres of Land (FAC 62-621). Coordination with AAC/EMCE is required to obtain stormwater and any necessary utility extension permits.

1.7 DOCUMENT ORGANIZATION

This environmental assessment follows the organization established by the Council of Environmental Quality (CEQ) regulations (40 CFR, Parts 1/500-1508). This document consists of the following chapters:

1.0 Purpose and Need for Action
2.0 Description of the Proposed Action and Alternatives
3.0 Affected Environment
4.0 Environmental Consequences
5.0 Plan, Permit, and Management Requirements
6.0 List of Preparers
7.0 List of Contacts and Correspondence
8.0 References

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

As required by federal regulation, this Environmental Assessment (EA) addresses the possible environmental impacts of the Proposed Action, an Alternative Action, and a No-Action Alternative. Section 2-6 provides a summary of the issues and potential impacts associated with the Proposed Action, Alternative 1, and No Action.

2.1 PROPOSED ACTION (PREFERRED ALTERNATIVE)

The Proposed Action, which is also the Preferred Alternative, is to construct eight separate Advanced Energetics buildings at any vacant site that is not currently encumbered by EQSD restrictions within the construction site. The potential construction area consists of land within the existing HERD fence perimeter. A description of each of the buildings, their function, and their area in square feet is shown in Table 2-1. The proposed location of the buildings as situated among existing HERD Facility buildings is presented in Figure 2-1. Temporary office space currently in use would revert to approximately 5,000 square feet of parking space (Figure 2-1). The eight buildings would be constructed over a period of five years beginning in Fiscal Year (FY) 04 and ending in FY08. Buildings 2, 4, 5, 6, and 8 have a requirement for conductive flooring (i.e. grounding), high strength walls and doors, and lightening protection for some or all rooms. Figures 2-3 through 2-5 show photographs of the proposed construction sites.

Table 2-1. Proposed Action Advanced Energetics Buildings

Building Number	Description	Area (square feet)	Construction Dates
1	General Research and Work Area	6,000	FY04-05
2	Explosive Storage	1,500	FY05-06
3	Materials Properties Laboratory	6,000	FY05-06
5	Dynamics Laboratory	2,000	FY05-06
4	Nanoenergetics Building	6,000	FY06-07
7	Dynamics Laboratory	2,000	FY06-07
6	Control Room	1,500	FY07-08
8	Advanced Processing, Mixing and Loading	6,000	FY07-08

2.2 ALTERNATIVE 1

Under Alternative 1, six separate buildings would be constructed at any vacant site that is not currently encumbered by EQSD restrictions within the construction site. The General Research and Work Area building, the Materials Properties Laboratory and the Nanoenergetics building (buildings 1, 3, and 4) would be consolidated. Alternative 1 is illustrated in Figure 2-2. Figures 2-3 through 2-5 show photographs of the proposed construction sites.

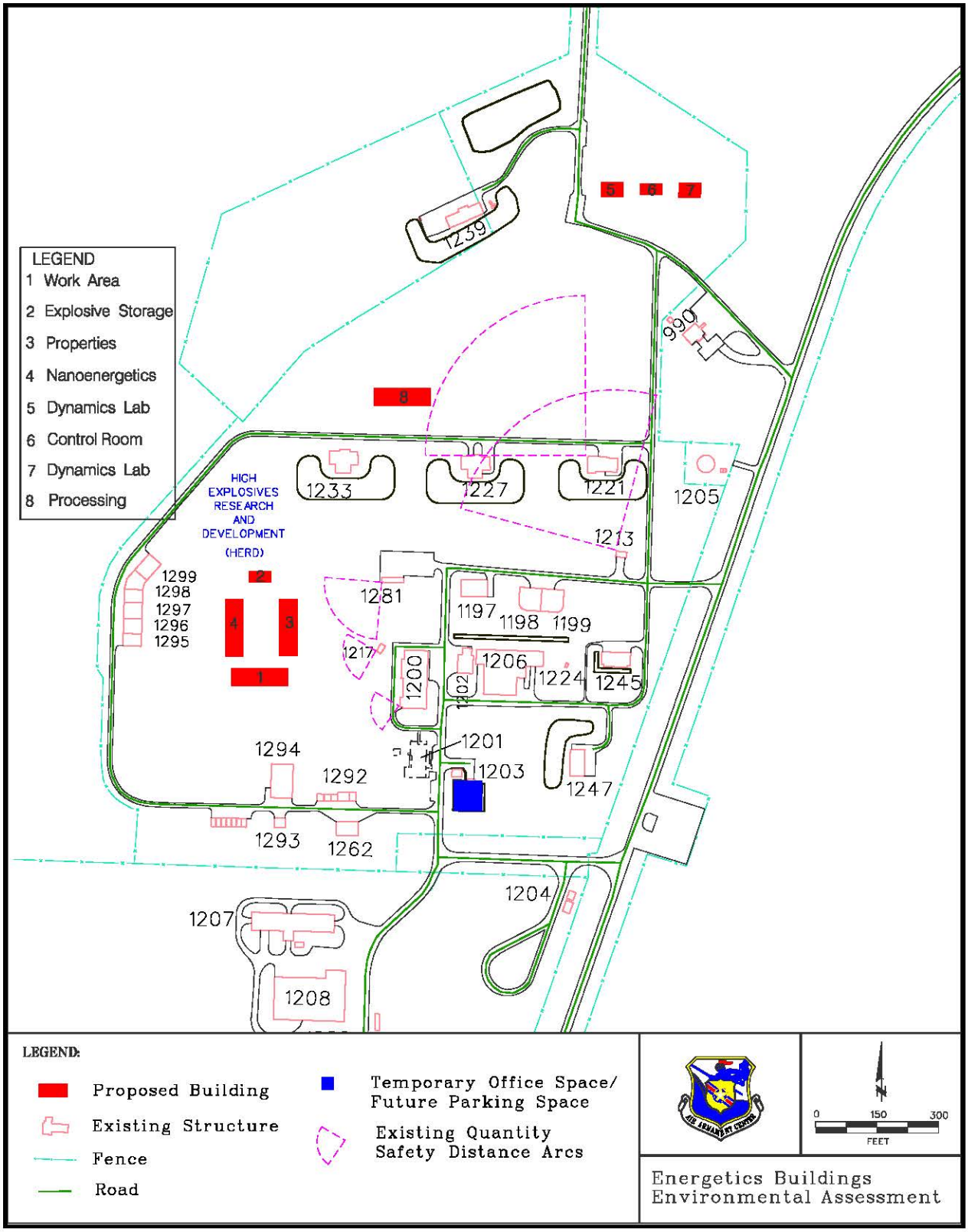

Figure 2-1. Proposed Action (Preferred Alternative)

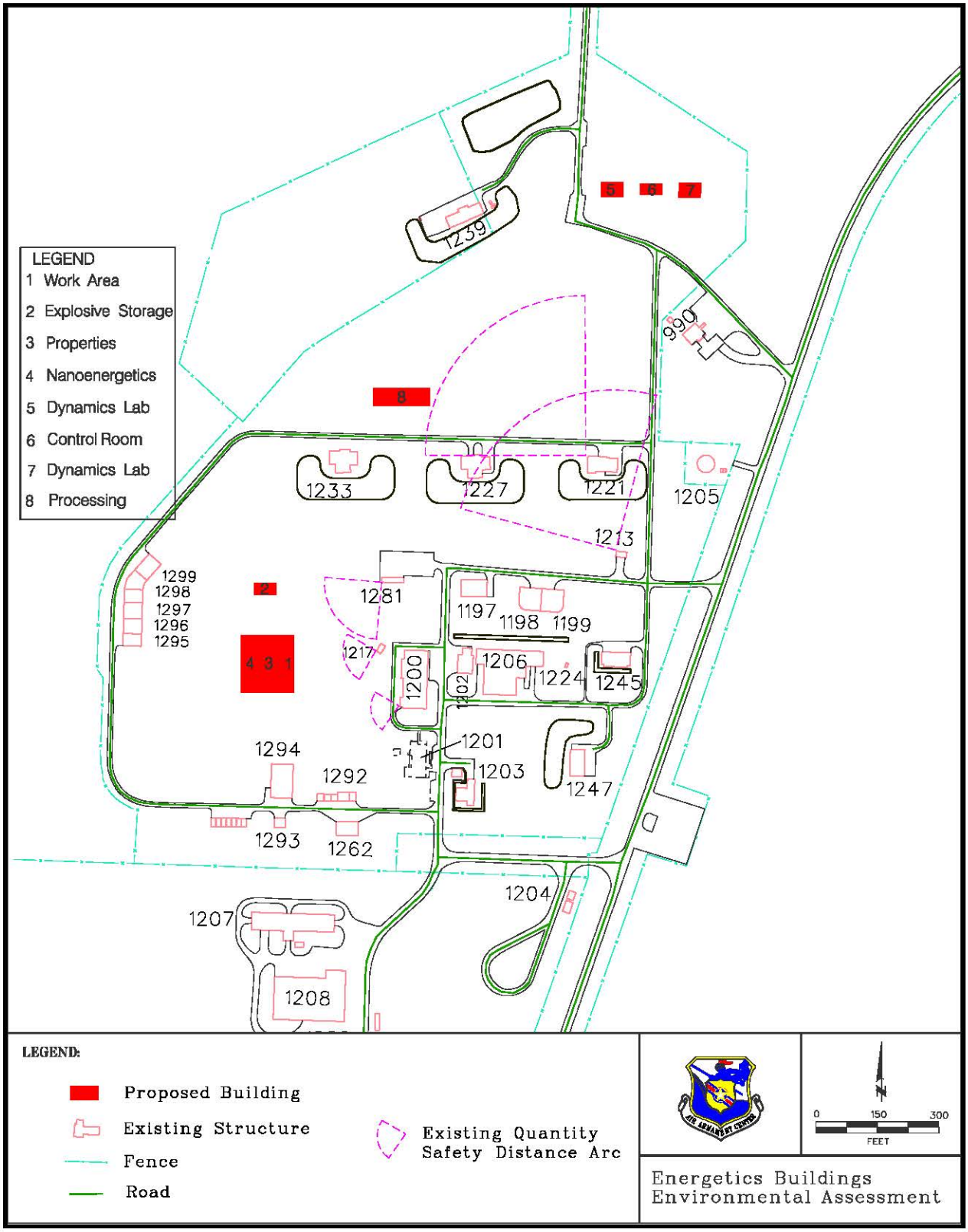

Figure 2-2. Alternative 1

Figure 2-3. Proposed Site of General Research and Work Area Nanoenergetics, and Properties Laboratory (Buildings 1-4)

Figure 2-4. Proposed Site of Dynamics Laboratories and Control Room (Buildings 5-7)

Figure 2-5. Proposed Site of Advanced Processing, Mixing, and Loading Building (Building 8)

Table 2-2. Alternative 1 Advanced Energetics Buildings

Building Number	Description	Area (square feet)	Construction Dates
1, 3 and 4*	General Research and Work Area, Nano-Energetics Laboratory and Materials Properties Laboratory	18,000	FY04-06
2	Explosive Storage	1,500	FY05-06
5	Dynamics Laboratory	2,000	FY05-06
7	Dynamics Laboratory	2,000	FY06-07
6	Control Room	1,500	FY07-08
8	Advanced Processing, Mixing and Loading	6,000	FY07-08

*Combined as one structure

2.3 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, no new Advanced Energetics buildings would be constructed.

2.4 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

No other alternatives were considered.

2.5 COMPARISON OF ALTERNATIVES

Table 2-3. Summary Matrix of Issues, Proposed Action and Alternatives, and Potential Impacts

Issue	Proposed Action	Alternative 1	No Action
Air Quality	Combustive emissions and fugitive dust from construction would be temporary. Air quality criteria would not be exceeded and the impacts would not be significant.	Impacts would be the same as the Proposed Action.	No impacts would occur.
Noise	Noise would not be significant. The construction site is within existing Air Installation Compatible Use Zone noise contours of 65 to 70 dBA. Construction noise would not perceptibly increase the average noise.	Impacts would be the same as the Proposed Action.	No impacts would occur.
Soils/Erosion	Impacts to soils would not be significant. Erosion would be controlled through construction best management practices.	Impacts would be the same as the Proposed Action.	No impacts would occur.
Water Quality and Wetlands	Wetlands would not be disturbed. Impervious surface area would increase resulting in an increase in stormwater runoff. An NPDES construction permit would be necessary.	Impacts would be the same as the Proposed Action.	No impacts would occur.
Biological Resources	There would be no impacts to sensitive species or habitats. A darter stream located north of the proposed site would not be directly or indirectly affected by construction or site runoff.	Impacts would be the same as the Proposed Action.	No impacts would occur.
IRP/AOC Sites	IRP/AOC sites exist outside of the proposed construction sites and would not be disturbed.	Impacts would be the same as the Proposed Action.	No impacts would occur.

3. AFFECTED ENVIRONMENT

3.1 AIR QUALITY

Air quality in a given location is described by the concentration of various pollutants in the atmosphere, generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

Pollutant concentrations are compared to federal and state ambient air quality standards to determine potential effects. These standards represent the maximum allowable atmospheric concentration that may occur and still protect public health and welfare, with a reasonable margin of safety. The national ambient air quality standards (NAAQS) are established by the Environmental Protection Agency (USEPA). In order to protect public health and welfare, the USEPA has developed numerical concentration-based standards or NAAQS for six "criteria" pollutants (based on health related criteria) under the provisions of the Clean Air Act Amendments of 1970 (CAA). There are two kinds of NAAQS: primary and secondary standards. Primary standards prescribe the maximum permissible concentration in the ambient air to protect public health including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards prescribe the maximum concentration or level of air quality required to protect public welfare including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

National ambient air quality standards have been established for: 1) ozone (O_3), 2) nitrogen dioxide (NO_2), 3) carbon monoxide (CO), 4) sulfur oxides (SO_2), 5) lead (Pb), 6) particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$). The NAAQS are the cornerstone of the CAA. Although not directly enforceable, they are the benchmark for the establishment of emission limitations by the states for the pollutants that USEPA determines may endanger public health or welfare. Florida has adopted the NAAQS except for sulfur dioxide (SO_2). USEPA has set the annual and 24-hour standards for SO_2 at 0.03 ppm (80 $\mu g/m^3$) and 0.14 ppm (365 $\mu g/m^3$) respectively. Florida has adopted the more stringent annual and 24-hour standards of 0.02 ppm (60 $\mu g/m^3$) and 0.01 ppm (260 $\mu g/m^3$) respectively. In addition, Florida has adopted the national secondary standard of 0.50 ppm (1,300 $\mu g/m^3$). Federal and state ambient air quality standards are presented in Table 3-1.

Table 3-1. National and State Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Federal Primary NAAQS[1,2,3]	Federal Secondary NAAQS[1,2,4]	Florida Standards
Carbon Monoxide (CO)	8-hour 1-hour	9 ppm (10 µg/m^3) 35 ppm (10 µg/m^3)	No standard No standard	9 ppm (10 µg/m^3) 35 ppm (40 µg/m^3)
Lead (Pb)	Quarterly	1.5 µg/m^3	1.5 µg/m^3	1.5 µg/m^3
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)
Ozone (O_3)	1-hour[5] 8-hour[6]	0.12 ppm (235 µg/m^3) 0.08 ppm (157 µg/m^3)	0.12 ppm (235 µg/m^3) 0.08 ppm (157 µg/m^3)	0.12 ppm (235 µg/m^3) 0.08 ppm (157 µg/m^3)
Particulate Matter ≤10 Micrometers (PM_{10})	Annual 24-hour[7]	50 µg/m^3 150 µg/m^3	50 µg/m^3 150 µg/m^3	50 µg/m^3 150 µg/m^3
Particulate Matter ≤2.5 Micrometers ($PM_{2.5}$)	Annual 24-hour[8]	15 µg/m^3 65 µg/m^3	15 µg/m^3 65 µg/m^3	15 µg/m^3 65 µg/m^3
Sulfur Dioxide (SO_2)	Annual 24-hour 3-hour	0.03 ppm (80 µg/m^3) 0.14 ppm (365 µg/m^3) No standard	No standard No standard 0.50 ppm (1300 µg/m^3)	0.02 ppm (60 µg/m^3) 0.10 ppm (260 µg/m^3) 0.50 ppm (1300 µg/m^3)

Source: FDEP, 2002; USEPA, 2003 (web site: www.epa.gov/airs/criteria.html)

1. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than 1. The USEPA has been given the authority by the federal courts to proceed with the implementation of the new 8-hour ozone standard and the PM 2.5 standard; however, they have not been implemented at this point and are included for information only.
2. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury; ppm refers to parts per million by volume.
3. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
4. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
5. The ozone one-hour standard still applies to areas that were designated nonattainment when the ozone eight-hour standard was adopted in July 1997.
6. The ozone eight-hour standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard.
7. The PM_{10} 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
8. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

The fundamental method by which the USEPA tracks compliance with the NAAQS is the designation of a particular region as "attainment," "nonattainment," or "unclassifiable." Areas meeting or having better air quality than the NAAQS are said to be in attainment. Areas that exceed the NAAQS are said to be in nonattainment. Areas that cannot be classified on the basis of available information as attainment or nonattainment are defined as unclassifiable and are treated as attainment areas. Attainment areas can be further classified as maintenance areas. Maintenance areas are areas that were previously nonattainment but have reduced pollutant concentrations below the standard and must maintain some of the nonattainment area plans to stay in compliance.

The Eglin Military Complex is located in the Mobile (Alabama)–Pensacola–Panama City (Florida)–Southern Mississippi Interstate Air Quality Control Region (federal AQCR #5). In Florida, AQCR #5 consists of the territorial area encompassed by the boundaries of the following jurisdictions: Escambia County, Santa Rosa County, Okaloosa County, Walton County, Holmes County, Washington County, Bay County, Jackson County, Calhoun County, and Gulf County.

The USEPA has classified the Florida counties in this AQCR as attainment for all criteria pollutants (40 CFR 81.310).

Over the past few years, ground-level ozone has become a problem along the Gulf Coast. Indications are that the prevailing wind patterns (land/sea breeze cycle) may be keeping pollutants (generated locally and transported into the area from out of the region) over the Florida Panhandle. Eight-hour ozone monitors have been operated in Pensacola (3) since 1999 and Navarre (1) and Panama City (1) since 2000. All monitoring stations in Pensacola, Navarre, and Panama City have three complete years of data (2000–2002) – the monitoring period needed to make an attainment/nonattainment designation. An exceedence of the standard was recorded in all three cities during 2000, but none have been recorded since. The three-year average for all locations is below the 8-hour standard of 85 parts per billion; therefore, all areas remain in attainment.

The new federal 8-hour standard for ozone has been established at a level equivalent to 85 parts per billion averaged over any 8-hour period. An area will be considered as nonattainment (not meeting the standard) if the average of the annual fourth highest ozone readings at any ozone monitor for any three year period equals or exceeds 85 parts per billion.

Identifying the affected area for an air quality assessment requires knowledge of pollutant types, source emissions rates and release parameters, proximity relationships of project emission sources to other emissions sources, and local and regional meteorological conditions. The affected area for emissions of O_3 precursors (volatile organic compounds [VOC] and nitrogen oxides [NO_X]) from the project would be the air shed (AQCR #5) surrounding Eglin AFB. However, because of the large size of the air quality control region, the affected area for O_3 and its precursors for this analysis is defined as Santa Rosa, Okaloosa, and Walton counties. Therefore, site-related emissions of VOCs and NO_X are compared to emissions inventory generated within these counties. The affected area for the inert pollutants (CO, SO_2, Pb, PM_{10}) that do not undergo a chemical reaction in the atmosphere is limited to the immediate vicinity of the particular activity and is also compared to the Santa Rosa, Okaloosa, and Walton Counties' portion of the AQCR emissions inventory as a means of assessing potential changes in air quality.

An air emissions inventory is an effort to qualitatively and quantitatively describe the amount of emissions from a facility or within an area. Inventories are designed to locate pollution sources, define the type and size of sources, define and characterize emissions from each source, determine relative contributions to air pollution problems by classes of sources and by individual sources, and determine the adequacy of regulations. The air emissions inventory is an estimate of total mass emissions of pollutants generated from a source or sources over a period of time, normally a year. Accurate inventories are needed for estimating the interrelationship between emissions sources and air quality and for determining whether an emission source requires an operating permit based on actual emissions or the potential to emit.

The latest air emissions inventories for Eglin AFB quantifies emissions from mobile sources based on 2000 calendar year activity (U.S. Air Force, 2001) and stationary sources based on 2000 calendar year activity (U.S. Air Force, 2001a). The most recent county inventories quantify emissions from stationary and mobile sources based on 2000 calendar year activity

(FDEP, 2002). The 2000 air emissions inventory provides actual emissions from all identified sources.

The most current emissions inventories for Eglin AFB and Okaloosa County are presented in Table 3-2. All inventories include mobile (aircraft, on-road vehicles, off-road vehicles, etc.) sources.

Table 3-2. Baseline Emissions Inventory (Tons)

Pollutant Emission Source	Pollutants (tons/year)				
	CO	NO_X	PM_{10}	SO_X	VOCs
Eglin AFB Stationary Emissions (CY2000)	95	118	115	17	106
Eglin AFB Mobile Source Emissions (CY2000)	14,429	56,000	4,233	10,538	3,924
Eglin AFB Totals	**14,524**	**56,118**	**4,348**	**10,555**	**4,030**
Okaloosa County Totals (CY2000)*	**91,361**	**8,709**	**3,930**	**406**	**11,958**

Source: U.S. Air Force, 2001; U.S. Air Force, 2001a; FDEP, 2002
*Includes mobile sources

3.2 NOISE

Noise is may be perceived as sound that interrupts or interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary or transient. Stationary noise sources are normally related to specific land uses, such as housing tracts or industrial plants. Transient noise sources move through the environment, either along established paths (e.g., highways and railroads), or randomly (e.g., a bulldozer operating in a large field). People and the places they occupy and wildlife are noise receptors, meaning they perceive noise and may be affected by it. Places considered to be noise receptors include schools and hospitals because the people within these facilities are the most likely to be easily disturbed. Noise receptors may exhibit various degrees of response to noise according to the noise type, characteristics of the sound source, their own sensitivity to noise, the time of day, and the distance between them and the sound source.

Definition of Resource

The physical characteristics of noise, or sound, include its intensity, frequency, and duration. Sound is created by acoustic energy, which produces minute pressure waves that travel through a medium, like air, and are sensed by the eardrum. As the acoustic energy increases, the intensity or amplitude of the pressure waves increases, and the ear senses louder noise. Sound intensity varies widely and is measured on a logarithmic scale to accommodate this wide range. The logarithm, and its use, is nothing more than a mathematical tool that simplifies dealing with very large and very small numbers. For example, the logarithm of the number 1,000,000 is 6, and the logarithm of the number 0.000001 is -6 (minus 6). As more zeros are added before or after the decimal point, converting these numbers to their logarithms greatly simplifies calculations that use these numbers. Logarithmically, sound levels are described in terms of decibels (dB). Zero dB is the threshold of hearing; normal human speech ranges from 60 – 65 dB; approximately 140 dB is the threshold of pain. It should also be noted that an approximate doubling in absolute

sound energy is reflected as an increase of 3 dB. However, for the average person to sense a doubling in sound, a 10-dB increase in noise level is normally required (USEPA, 1974).

The frequency of sound is measured in cycles per second, or hertz (Hz). This measurement reflects the number of times per second the air vibrates from the acoustic energy. Thunder is a low frequency sound, while whistles are a high frequency sound. Sound measurement is further refined through the use of weighting scales. The normal human ear can detect sounds that range in frequency from about 20 Hz to 15,000 Hz. However, all sounds throughout this frequency range are not heard equally well. Therefore, through internal electronic circuitry, some sound meters are calibrated to emphasize frequencies in the 1,000 to 4,000 Hz range. The human ear is most sensitive to frequencies in this range, and sounds measured with these instruments are termed "A-weighted."

The duration of noise events and the number of times they occur are also important considerations in assessing noise impacts. Based on measurements of individual noise events, average sound levels over extended periods of time can be calculated. In assessing noise associated with the proposed construction projects, several metrics are considered.

The term "metric" describes a standard of measurement. As used in environmental noise analyses, there are many different types of noise metrics. Each has a different meaning or interpretation, and each was developed to represent the effects of environmental noise. The primary noise metrics considered in this EA are the maximum sound level (L_{max}), the Sound Exposure Level (SEL), and the equivalent sound level (L_{eq}). Each metric represents a "tier" for quantifying the noise environment. In this EA, all noise level metrics are A-weighted, and are expressed in terms of A-weighted decibels (dBA). The assessment of noise impacts will focus on average noise levels, specifically L_{eq}.

L_{max} represents the first tier in quantifying the noise environment. It is the highest instantaneous sound level measured during a noise event. For a receptor, noise levels start at ambient, background noise levels, rise up to a maximum level as the event occurs (like a motorcycle moving down a street), and then return to background levels as the noise source moves away from the receptor.

SEL, the second tier, combines the maximum sound level associated with the noise event and the duration of the event. L_{max} alone may not represent how intrusive a noise event may be because it does not consider the length of time the noise event persists. SEL combines both of these characteristics into a single metric. It is important to note, however, that SEL does not directly represent the sound level heard at any one time, but rather provides a measure of the total acoustic exposure associated with the entire event, and normalizes it into a one-second duration. Therefore, for noise events that last longer than one second, the SEL level, in dB, will be greater than the L_{max} level, in dB. SEL values are also important because that metric forms the basis for the calculation of average sound levels over periods of time.

Although the first and second tiers (L_{max} and SEL) provide a description of a specific noise event, neither describes in a single metric the impact of multiple exposures to elevated noise events. The third tier, which may be used to estimate overall noise impacts, is the equivalent sound level (L_{eq}). This metric represents the sum of the individual noise events and the average

of the resulting noise level over a specified period of time. Thus, it is a composite metric that includes the maximum noise level associated with each discreet event, the duration of each discreet event, and the number of discreet events that occur. The noise assessment in this EA uses time-averaged metrics.

Time-Averaged Cumulative Day-Night Average Noise Metrics

The equivalent sound level (L_{eq}) is a metric reflecting average continuous sound. The metric considers variations in sound magnitude over periods of time, sums them, and reflects, in a single value, the acoustic energy present during the time period considered. Common time periods for averaging are 1, 8, and 24-hour periods.

The Day-Night Average Sound Level (L_{dn}) also sums the individual noise events and averages the resulting level over a specified length of time. Normally, this is a 24-hour period. Thus, like L_{eq}, it is a composite metric representing the maximum noise levels, the duration of the events, and the number of events that occur. However, this metric also considers the time of day during which noise events occur. This metric adds 10 dB to those events that occur between 10:00 P.M. and 7:00 A.M. to account for the increased intrusiveness of noise events that occur at night when ambient noise levels are normally lower than during the daytime. It should be noted that if no noise events occur between 10:00 P.M. and 7:00 A.M., the value calculated for L_{dn} would be identical to that calculated for a 24-hour equivalent noise level ($L_{eq(24)}$). This cumulative metric does not represent the variations in the sound level heard. Nevertheless, it does provide an excellent measure for comparing environmental noise exposures when there are multiple noise events to be considered.

Average Sound Level metrics are the preferred noise metrics of the Department of Housing and Urban Development (HUD), the Department of Transportation (DOT), the Federal Aviation Administration (FAA), the U.S. Environmental Protection Agency (USEPA), and the Veteran's Administration (VA). Scientific studies and social surveys have found that Average Sound Level metrics are the best measure to assess levels of community annoyance associated with all types of environmental noise. Therefore, their use is endorsed by the scientific community and governmental agencies (ANSI 1980, 1988; USEPA 1974; FICUN 1980; FICON 1992, U. S. Army 1994). In general, there are no recommended restrictions on any land uses at day-night average sound levels of 65 dBA or less.

Existing Conditions

The current noise environment is characterized by vehicle and aircraft noise. The Eglin Main Airfield is situated about 3,000 feet east of the center of the project area and Highway 85 is located about 3,000 feet north of the project area. There are no residential areas nearby. The annual average noise from the airfield, represented as Air Installation Compatible Use Zones (AICUZ) contours in Figure 3-1 was calculated by the NOISEMAP noise model. According to model output, annual day-night average airfield noise ranges from 65 to 70 dBA. In general, there are no recommended restrictions on any land uses at day-night average sound levels of 65 dBA or less.

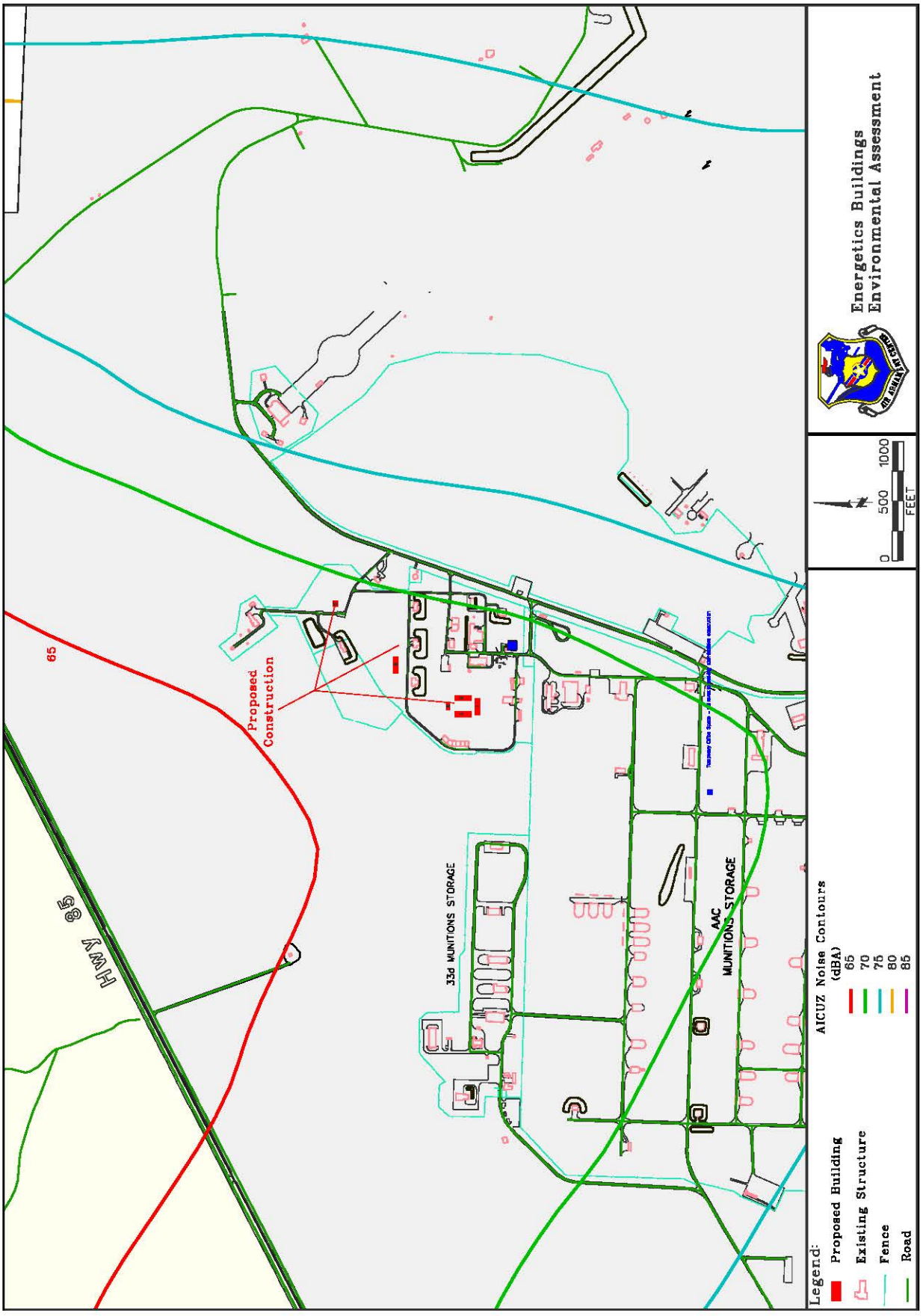

Figure 3-1. Noise Environment at the Proposed Action Location

3.3 SOILS

The geology beneath the existing HERD Facility consists of ~90 feet of poor to moderately sorted, fine to coarse quartz sand with varying amounts of silt and clay overlying the Pensacola Clay formation.

Overall, the majority of Lakeland Association soils are well drained, sandy, and low in organic matter content and cation exchange capacity (CEC). Soil pH values range from 4.5 to 6.0 and contain less than one percent organic matter in the top 0 to 40 inches of soil. Reported CEC values for the top six inches of Lakeland soils were variable (3.5 to 17 milliequivalents per 100 grams soil) and likely reflect variability in sampling sites (e.g., amount of surface organic matter, disturbed versus undisturbed surface). Permeability ratings are moderate to very rapid (6 to 20 inches per hour) for Lakeland soils (U.S. Department of Agriculture, 1995). Rainfall and runoff investigations at Eglin showed that due to the high permeability of Eglin soils, rainfall sequences were required before overland flow and runoff occurred (Becker et al., 1989). Lakeland soils have a bulk or particle density of 1.48 grams per cubic centimeter (g/cm^3) (U.S. Department of Agriculture, 1995).

The Lakeland soils are easily eroded because they lack cohesiveness and have limited water-holding capacity. The establishment and maintenance of vegetation is difficult because the soils are too sandy, low in productivity, or are on steep slopes (U.S. Air Force, 1995).

3.4 WATER QUALITY AND WETLANDS

3.4.1 Surface Water Resources

Tom's Creek

Water quality monitoring performed in the 1970s indicated that Tom's Creek was meeting its designated use according to FDEP water quality indicators. However, the 2000 FDEP 305(b) report on water quality of Florida watersheds lacked sufficient data on Tom's Creek to make a current determination. Tom's Creek is one of just a few creeks on Eglin that provide habitat for the federally endangered Okaloosa darter, *Etheostoma okaloosae*, which requires clear, fast-moving water. More information on the Okaloosa darter is presented in the Threatened and Endangered Species section.

3.4.2 Groundwater

There are two significant aquifers at Eglin AFB and the surrounding area: the Surficial Aquifer, also known as the Sand and Gravel Aquifer, and the Floridan Aquifer. The Sand and Gravel Aquifer is a generally unconfined, near-surface unit segregated from the underlying limestone Floridan Aquifer by the low-permeability Pensacola Clay confining bed.

Sand and Gravel Aquifer

The Sand and Gravel Aquifer consists of the Citronelle Formation and marine terrace deposits, which thicken to the southwest, reaching a maximum thickness of 1,200 feet at Mobile Bay,

Alabama. Both of these geologic units occur at the land surface. The thickness of the Sand and Gravel Aquifer in the region of influence (ROI) ranges from 25 to 300 feet. The aquifer is composed of clean, fine-to-coarse sand and gravel but locally contains silt, silty clay, and peat beds. In the vicinity of Fort Walton Beach, the aquifer consists of several distinct sandy units, the lowest of which is the main producing zone. Yields from wells within this zone vary considerably but are generally in the range of 200-400 gallons per minute (U.S. Army Corps of Engineers, 1994).

In the Coastal Lowlands region, the water table is at or within a few feet of land surface. In the Western Highlands region, the water table may occur at considerable depth below land surface. In this area, lakes and perched waters occur where local shallow clay and silt layers restrict the downward movement of water to the regional water table. On the installation, some of the range area wells draw relatively small amounts of water from this aquifer for operational uses. The Sand and Gravel Aquifer has been identified as an important source of water for Escambia, Okaloosa, and Santa Rosa counties. It is used primarily for irrigation in Okaloosa and Walton counties (FDEP, 2000).

Water quality of the Sand and Gravel Aquifer is good, being very soft and relatively demineralized. Raw water from the aquifer has a pH ranging from 3.0 to 10.2, although it is usually acidic. Its average pH is 4.9 in the upper zone and 7.2 in the lower (production) zone. The nitrate average for the upper zone is 0.81 milligram per liter (mg/L) and 0.11 mg/L for the lower zone. Iron content of the aquifer ranges from 0.07 mg/L to 95 mg/L with a median of 2.05 mg/L (Maddox et al., 1992).

On Eglin AFB there are numerous shallow aquifer groundwater monitoring wells. These groundwater monitoring wells are generally associated with either FDEP permitted facilities requiring a groundwater monitoring plan (open burn/open detonation, landfills and wastewater spray fields) or with IRP sites. At IRP sites, groundwater wells are installed where groundwater contamination may have occurred.

The Sand and Gravel Aquifer is vulnerable to contamination from surface pollutants. Several IRP sites on base have been reported as having various amounts of petroleum hydrocarbons, pesticides, heavy metals, and a wide variety of other compounds associated with the groundwater. Additional aquifer contamination may have occurred from areas of concern (AOCs) not yet assessed under the IRP. AOCs are generally associated with former landfills, hardfills, spill sites, disposal areas, industrial operations, oil/water separators, open burn/open detonation areas, and munitions testing.

Floridan Aquifer

The ROI for water supply systems includes portions of Santa Rosa, Okaloosa, and Walton counties. This section discusses the regulatory requirements and management of the Floridan Aquifer potable water supply, followed by a discussion of local water supply systems and Eglin AFB water supply systems.

The Floridan Aquifer, which occurs beneath most of the state of Florida, consists of a thick sequence of interbedded limestones and dolomites overlain by the Pensacola Clay confining bed.

The Bucatunna Formation confining bed separates the Floridan Aquifer into upper and lower limestone units. The lower limestone unit is saline and is not used as a water source.

The upper limestone of the Floridan Aquifer is the principal source of water used at Eglin AFB and in the surrounding communities. The water used is not returned to the aquifer; it is "consumed" by AAC and associate unit activities and base residents. The Northwest Florida Water Management District regulates the consumption of water from the Floridan Aquifer through consumptive use permits. Eglin operates 61 water wells, requiring 18 consumptive use permits. Many nearby cities and businesses also have wells that draw water from the same aquifer. Conservation of water is therefore essential to protect a valuable resource and to ensure the usage limits identified in our permits are not exceeded. Water conservation measures taken at Eglin include restricting irrigation and installing low-flow plumbing fixtures during housing and office renovations and new construction. Irrigation systems are also being converted to withdraw water from the shallow Sand and Gravel Aquifer. The use of drought-resistant landscaping is encouraged. These efforts will protect the Eglin water supply by reducing consumptive uses of water withdrawn from the Floridan Aquifer (U.S. Air Force, 2001). The Floridan Aquifer is the main potable water source for Eglin AFB and surrounding municipalities. Eglin AFB has over 43 permitted wells that use the Floridan Aquifer waters. These wells are required to be sampled on a regular basis as part of their operating permit. Water from these wells is sampled for all state and federal primary and secondary drinking water standards. All operating production wells currently meet drinking water standards set by the state.

Groundwater storage and movement in the upper limestone of the Floridan Aquifer occurs in interconnected, intergranular pore spaces, small solution fissures, and larger solution channels and cavities. Yields from wells are large, ordinarily in the range of 250 to more than 1,000 gallons per minute, and the water is found under confined conditions throughout the Eglin AFB area (USGS, 2002).

Groundwater Information for the Existing HERD Facility Site and Proposed Construction Site

The groundwater at the proposed construction site is encountered at approximately 50 to 55 feet below ground surface. A groundwater divide in the extreme western portion of the existing facility results in groundwater flow to the north-northwest in that area. Groundwater in other areas of the site, as well as surface water runoff, flows east toward Beaver Pond and northwest toward an unnamed creek (U.S. Air Force, 2000).

3.5 BIOLOGICAL RESOURCES

Biological resources include the native and introduced terrestrial plants and animals around Eglin AFB. The land areas at Eglin are home to unusually diverse biological resources including several sensitive species, habitats, and wetlands. Eglin uses a classification system based on ecological associations that were developed based on floral, faunal, and geophysical characteristics. These ecological associations are described in the *Eglin AFB Integrated Natural Resources Management Plan* (*INRMP*) (U.S. Air Force, 2001) and the *Environmental Baseline Study Resource Appendices* (U.S. Air Force, 1995). Seven ecological associations occur

throughout the Eglin Land Test and Training Range: Sandhills, Sandpine, Flatwoods, Open Grassland/Shrubland, Swamp, Barrier Island, and Landscaped/Urban.

Ecological Associations Near the Existing HERD Facility

Ecological associations provide habitat for birds, reptiles, amphibians, fish, and mammals. The characterizations provided below are not comprehensive or exclusive listings since the species utilize a variety of communities (U.S. Air Force, 1995). The Sandhills, Landscaped/Urban, and Swamp ecological associations found near the existing HERD Facility and on the proposed construction site are discussed in this section and presented in Figure 3-2. Sandhills near the proposed construction site occur in an area that is highly disturbed by human activity. Thus, the diversity of plants and animals within these Sandhills is probably low. The description that follows is typical for the Sandhills located on the Eglin reservation rather than within the main base area where the proposed action would occur.

Sandhills Ecological Association

Sandhills are underlain by Lakeland soils, which are deep, sandy, and well drained, creating a dry condition. This ecological association is typically characterized by rolling sandhill ridges dissected by streams. It includes pockets of habitat ranging from steeply sloped to flat and xeric (dry) to mesic (moist) (U.S. Air Force, 1995).

Dominant trees include stands of longleaf pine, sand pine, oaks, and magnolia. Low shrubs comprise an important group and include saw palmetto, persimmon, dwarf huckleberry, gopher apple, and various oaks (U.S. Air Force, 1995). Various grasses, herbs, lichens, and several rare plants comprise the understory (U.S. Air Force, 1995). Some of the dominant plant families include the sunflower (*Asteraceae*), milkweed (*Asclepiadaceae*), sedge (*Cyperaceae*), heath (*Ericaceae*), pea (*Fabaceae*), grass (*Poaceae or Gramineae*), buckwheat (*Polygonaceae*), and the yellow-eyed grass (*Xyridaceae*) families (U.S. Air Force, 1995).

Typical plants include panicums, rushes, arrowheads, yellow-eyed grass, meadowbeauty, and spike-rush (U.S. Air Force, 1995).

Representative amphibians of the Sandhills ecological association include barking tree frogs, leopard frogs, newts, and gopher frogs. Leopard frogs are found in swales containing wetlands. Gopher frogs utilize ephemeral ponds, including depression marshes, for breeding along with some sandhill upland lakes (provided there are no fish present). They also wander in the surrounding upland areas (U.S. Air Force, 1995). Reptiles include the gray rat snake, coral snake, six-lined racerunner, eastern fence lizard, gopher tortoise, and box turtle. Squirrels (the fox, gray, and flying), armadillo, and feral pig also live in the Sandhills along with the white-tailed deer and raccoon. Characteristic predators include the gray fox and bobcat. On occasion the Florida black bear is found in the Sandhills ecological association (U.S. Air Force, 1995).

Raptors include the screech owl, red-shouldered hawk, and great horned owl, which nest and hunt rodents in the woodlands of the Sandhills (U.S. Air Force, 1995). The southeastern American kestrel preys on small rodents, reptiles, and insects in clearings or woodland edges. Ground-dwelling game birds include wild turkeys, wood ducks, mourning doves, and ground doves. The sandhill upland lakes provide feeding areas for wading birds. Other indigenous birds

include warblers, vireos, the red-cockaded woodpecker, the pileated woodpecker, the white-breasted nuthatch, Bachman's sparrow, and the pine siskin.

Neotropical migrants are birds that winter in South and Central America and come to temperate regions, such as the continental United States, to breed in the summer. Neotropical migrants occurring on Eglin include the ruby-throated hummingbird, summer tanager, northern parula, red-eyed vireo, and hooded warbler. Tucker et al. (1996) observed that Eglin is not within the migratory pathways of most trans-Gulf migrants during spring, but stated that the general area of northwest Florida could provide important stopover habitat during some years.

Hammocks and riparian sites at Eglin were observed to have the largest number of neotropical migrants during spring, while sandhills contained few neotropical migrants during spring (Tucker et al., 1996).

Landscaped/Urban Ecological Association

Four of the proposed buildings occur within the Landscaped/Urban ecological association, having undergone disturbance from previous construction and clearing activities. Landscaped/Urban areas on Eglin are often the source of invasive exotic plant species.

These areas provide habitat for a variety of bird species, which have adapted well to man-made environments. Native blue jay, cardinal, American crow, and the nonnative English house sparrow and European starling are typical examples of these species. Raccoon, opossum, white-tailed deer, and coyote are also sighted occasionally in landscaped areas.

Sensitive Habitats

Sensitive habitats found near the proposed construction site include wetlands, an Okaloosa darter stream, a Florida Natural Areas Inventory (FNAI) Type I vegetative communities (Table 3-3, Figure 3-3). The FNAI areas are often associated with sensitive species and are found primarily within the Sandhills, Swamp, and Flatwoods Ecological associations (U.S. Air Force, 1996).

Table 3-3. Sensitive Habitats Located On or Within 1 Kilometer (km) of the Proposed Construction Site

Sensitive Habitat or Species	Measure within 1 km Radius	Nearest Distance from Construction Site
Tier 1 Scrub Habitat	8.3 acres	1,330 feet
Okaloosa Darter Stream	5,200 feet	1,280 feet
Wetland	62 acres	750 feet

The mission of the FNAI is to collect, interpret, and disseminate ecological information critical to the conservation of Florida's biological diversity (FNAI, 2001). FNAI maintains a state-wide database on the distribution, status, and management of exemplary natural communities; endangered and rare plants and animal taxa; and managed areas in Florida. FNAI classifies land areas into the following four-tiered classification system (FNAI, 1995).

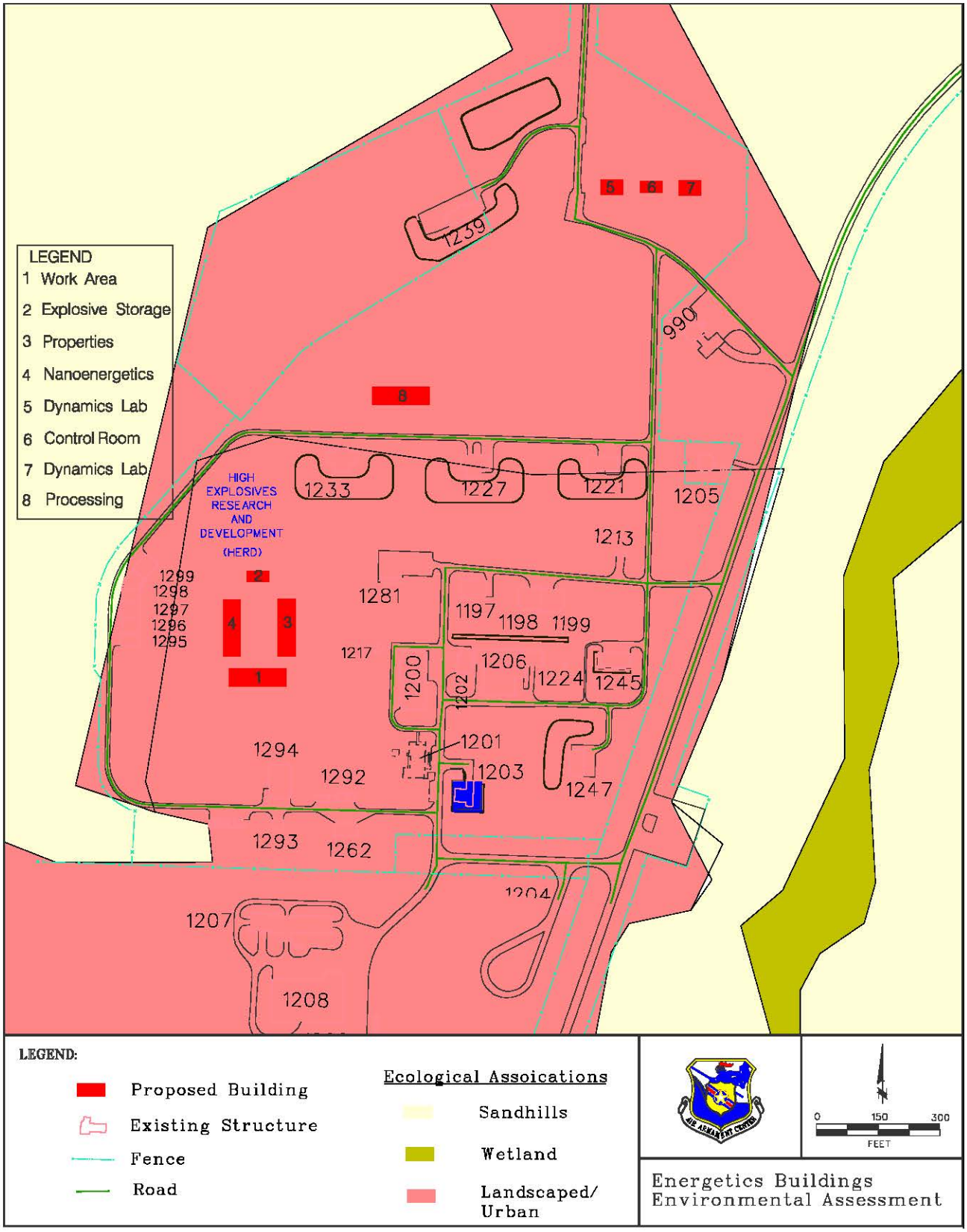

Figure 3-2. Ecological Associations

Tier I: Vegetative communities that are in or closely approximate their natural state and undisturbed condition. The goal of management at Eglin is to maintain the natural community so that it can support the mission.

Tier II: Vegetative communities that retain a good representation and distribution of associated species typical of the undisturbed state, but have been exposed to moderate amounts and intensities of disruptive events. Through careful management, the community may be restored or maintained.

Tier III: Vegetative communities that do not retain good representation and distribution of associated species and have been exposed to severe amounts and intensities of disruptive events. Significant and intensive management over extended periods would be required to restore these communities (pine plantations, etc.).

Tier IV: Areas on Eglin that have a designated land use, such as test areas, developed areas, sewage disposal areas, roads, power line rights-of-way, and other uses. The nature of the designated use determines the management goal.

This classification system has been applied to reservation land at Eglin AFB. Consequently, several Tier I communities have been identified. Tier I hydric/mesic communities are the most sensitive to degradation since they are wetlands.

An FNAI survey was conducted at Eglin Air Force Base from 1992 through 1994 for populations of federally listed endangered, threatened, and candidate plant species, state listed endangered and threatened plant species, and other rare plant species (Chafin and Schotz, 1995). As a result of this survey, some areas on Eglin are considered to be significant botanical sites due to value as habitat for rare plant species or because of the high quality or rarity of their natural vegetative communities on Eglin. Special protection at these sites is required for two reasons: 1) high density of federal and state protected plant species, and 2) uniqueness of habitat that supports sensitive animals as well as plants. Sixteen areas on the Eglin reservation were selected as Significant Botanical Sites based on one or more of the above mentioned attributes. These sensitive sites constitute about 20,000 acres on Eglin AFB.

Sensitive Species

An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is any species that is likely to become endangered within the future throughout all or a significant portion of its range due to factors such as loss of habitat and anthropogenic effects. A candidate species is one for which the U.S. Fish and Wildlife Service (USFWS) has on file sufficient information on biological vulnerability to warrant a listing, but the listing is precluded at the present time. Once legally protected, it is a federal offense to "take" (import, export, kill, harm, harass, possess, or remove) protected animals from the wild without a permit. Federal candidate species should be given consideration during planning of projects, but have no protection under the Endangered Species Act. Similar regulations are in place for state-listed species (endangered, threatened, or species of special concern). While these state regulations do not apply on federal lands (U.S. Air Force, 2001a), Eglin, in 1992 along with the USFWS and the Florida Fish and Wildlife Conservation Commission (FWC), entered into a cooperative agreement to manage individual species on the installation, including both federal and state listed species.

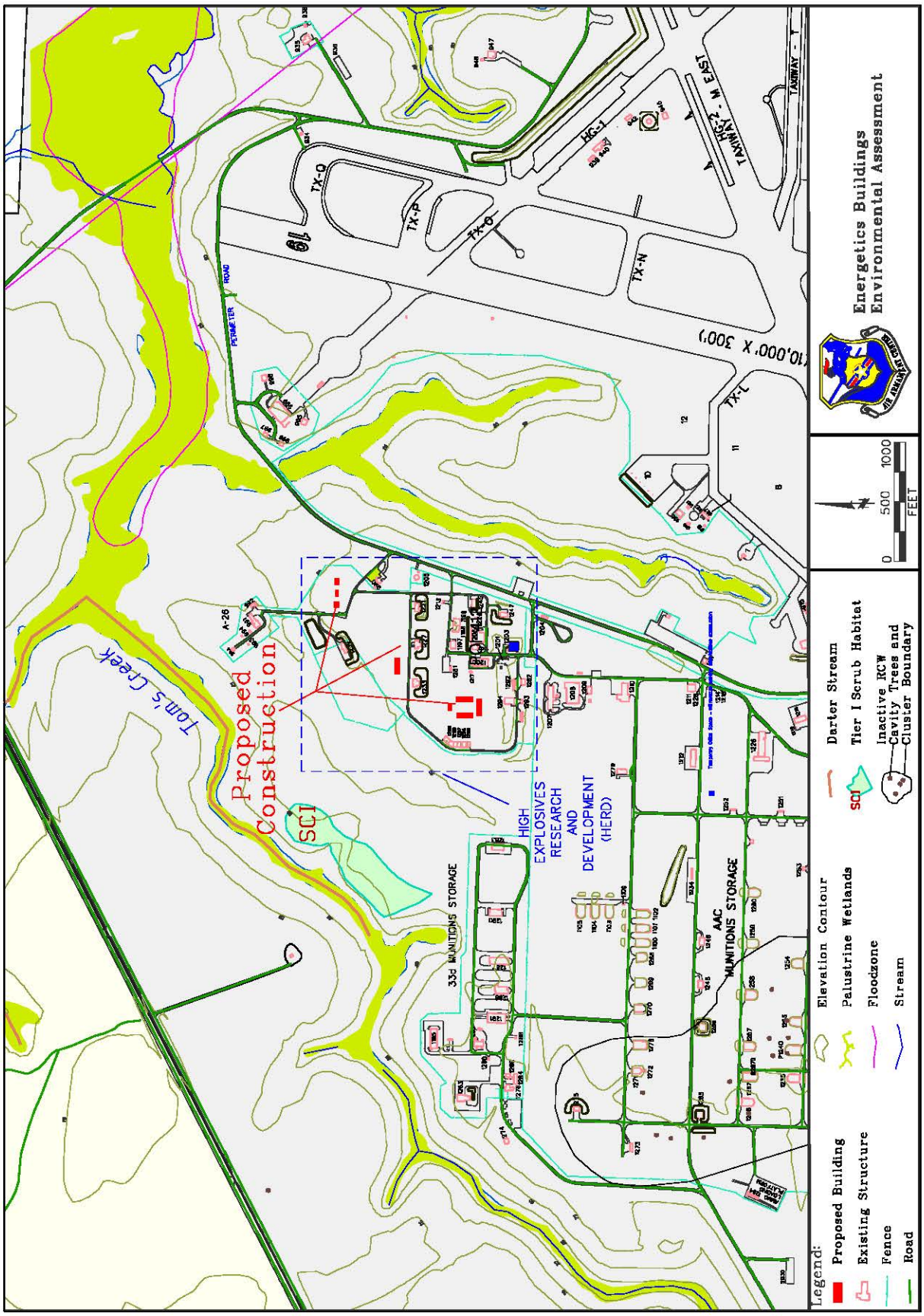

Figure 3-3. Sensitive Species and Habitats Near the Proposed Construction Site

Under 16 USC 1531 to 1544; 1997-Supp; Endangered Species Act 1973 (ESA), federal agencies must ensure that their actions (including permitting) do not jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify the habitat of such species without a permit, and must set up a conservation program. A Section 7 consultation with the USFWS would be required if a take, which is defined as pursuing, molesting, or harming a protected species, were to occur. If the Proposed Action were likely to adversely affect a federally protected species, the USFWS would determine whether jeopardy or non-jeopardy to the species population would occur. As a result, Air Force projects that may affect, either directly or indirectly, federally protected species, species proposed for federal listing, or critical habitat for protected species are subject to Sections 7 and 10 of the Endangered Species Act prior to the irreversible or irretrievable commitment of resources (U.S. Air Force, 1995). Eglin has developed an overall goal within the Integrated Natural Resources Management Plan to continue to protect and maintain populations of native threatened and endangered plant and animal species within the guidelines of ecosystem management (U.S. Air Force, 2001).

No sensitive species occur on the proposed construction site (Figure 3-3). Inactive red-cockaded woodpecker (RCW) cavity trees are present within one kilometer and the Okaloosa darter (*Etheostomae okaloosae)* may occur in Tom's Creek, also located within one kilometer.

3.6 METEOROLOGY

The Eglin Military Complex is located in an area that is subject to warm, subtropical weather that lasts almost nine months out of the year and is characterized by an abundance of sunshine and rainfall, warm and humid summers, and mild winters. The climate in the local area may be considered semitropical, being dominated by maritime tropical air during the summer and continental polar air during the winter. There are two major seasons, summer and winter. Summer occurs from April through September and is characterized by high humidity and frequent air mass type thunderstorms. Winter occurs from September through March and is characterized by prevailing northerly winds with fairly frequent frontal passages or periods under the influence of semi-stationary frontal zones.

The proximity of Choctawhatchee Bay and the Gulf of Mexico, coupled with the upward sloping terrain, causes a land/sea breeze cycle that impacts Eglin and results in the formation of a line of showers and thunderstorms almost daily during the summer. This line of coastal thunderstorms forms parallel to the coast 5 to 25 miles inland depending on the sea breeze strength. On any day that solar heating raises the land temperature above the Gulf temperature, a sea breeze will form. Under normal conditions, the sea breeze will start around 1000 hours local, and then cease rapidly after sunset. At night, under similar conditions, when the land cools to a lower temperature than the Gulf, a land breeze develops. The land breeze usually begins around 2300 hours local and dies shortly after sunrise. This flow is the dominant weather situation during the summer months and is observable to some extent throughout the year.

Eglin AFB is vulnerable to tropical storms that originate off North Africa and in the Caribbean. The Atlantic hurricane season runs from 15 April through 30 November. In the Eglin area, the most likely months are August through October. Historically, this area experiences gale-force winds an average of once every three years and hurricane-force winds an average of once every six years. Weather associated with hurricanes includes tornadoes, high winds, and extremely heavy rain.

Overall, the Choctawhatchee Bay and the Gulf of Mexico moderate the climate of Eglin AFB by tempering the cold northern winds of winter and causing cool sea breezes during the daytime in the summer. The average annual temperature at Eglin is 68 degrees Fahrenheit (°F). Average monthly temperatures range from 51°F in January to 82°F in July and August. The highest average daily maximum temperature is 89°F in July and August and the lowest average daily temperature is 42°F in January. Annual rainfall averages approximately 62 inches, occurring primarily in the summer and late winter or early spring. Historically, the heaviest rainfall occurs during July at an average of 7.7 inches, and the lowest occurs in October at an average of 3.5 inches. Most of the summer rainfall is from scattered showers and thundershowers that are often heavy and last only one or two hours.

Prevailing winds are usually from the north in winter and from the south in summer with an annual average wind speed of five knots. January, February, March, April, and December are the windiest months with an average wind speed of six knots. July and August have the lowest average velocity winds at four knots. During summer, a moderate sea breeze usually blows off the Gulf of Mexico, and occasional strong winds come from thunderstorms.

3.7 IRP/AOC SITES

Two points of interest (POI) and one IRP/AOC site are located within 700 feet of the proposed construction site for the Advanced Energetics buildings (Figure 3-4).

3.7.1 POI 358. Water Tower No. 1205

Soils beneath water towers at Eglin have at times been found to contain lead-based paint chips. Soils at Water Tower No. 1205, which was constructed in 1986, were investigated in 1998 but no paint chips were found. Analysis of the paint on the tower indicated that it was not lead based and the POI file was closed in 1999 after a USEPA approval of NFA.

3.7.2 POI 412. High Explosives R&D (HERD) Facility Building 1206

Building 1206 was used for the partial assembly of six warheads in the early 1990s. The warheads, which were filled with inert material and painted to prevent contamination to the facility were returned to C-64C Advanced Warhead Experimentation Facility and shipped to Los Alamos National Lab for testing. In 1998, USEPA approved NFA.

3.7.3 Site SS-32. HERD PCE Spill Site

Site SS-32 is a perchloroethylene (PCE) spill site, formerly IRP Site IS8, covering approximately 10.5 acres at east of the Proposed Action site. In addition to a 55-gallon drum of PCE rupturing in 1980 near building 1201, other solvents such as hexane and acetone, and waste chemicals including explosive and contaminated solids were stored or used at the site. A drain field located north of the buildings, no longer used, received some of the materials that were washed into floor or sink drains from within the HERD. Groundwater, soil, surface water, and sediment samples were collected from 17 groundwater wells and analyzed. Groundwater chemistry did not reflect contamination from the past activities and the site was closed as a NFA site in 1998 by the USEPA and FDEP.

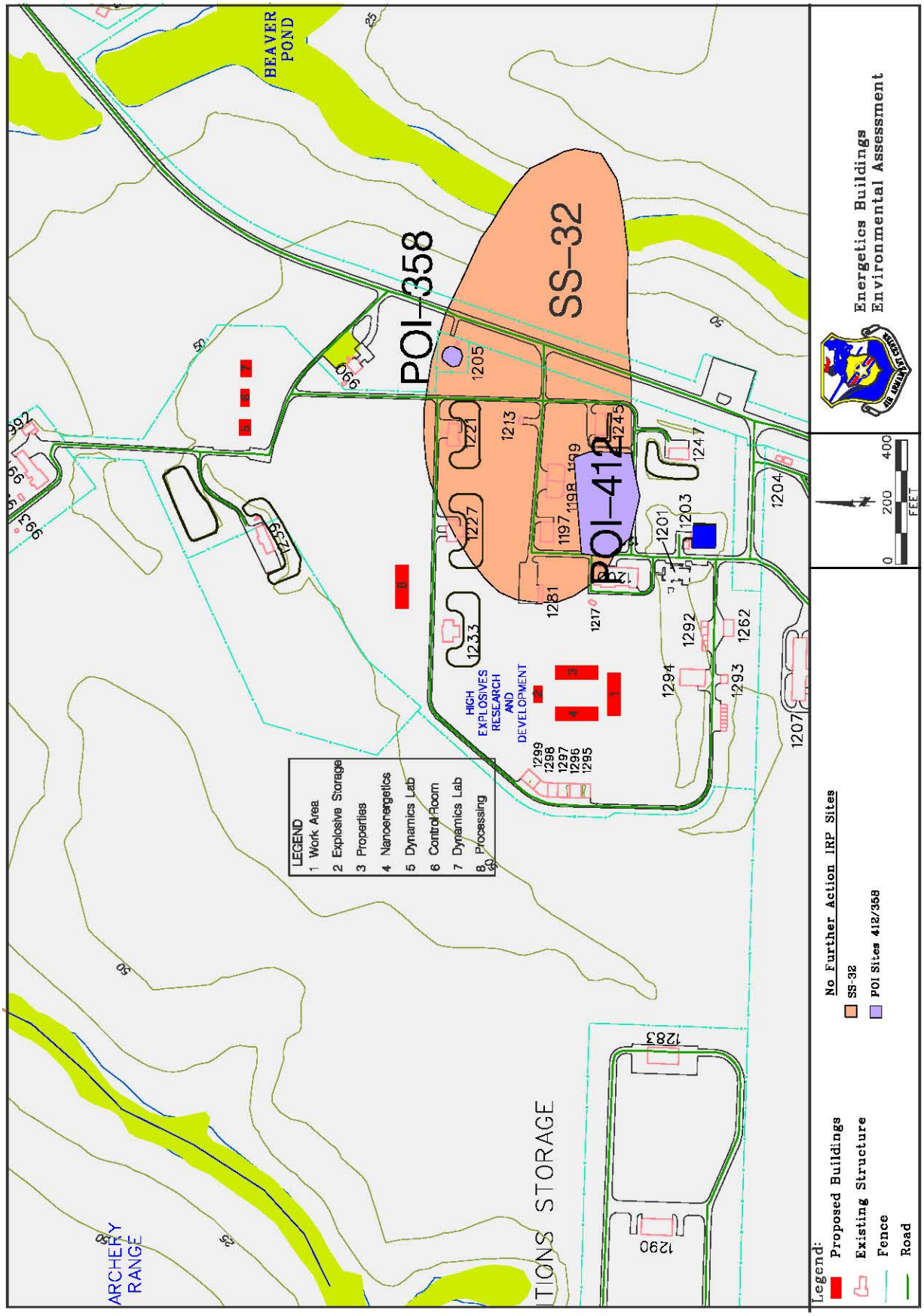

Figure 3-4. IRP/AOC Sites Near the Proposed Construction Site

4. ENVIRONMENTAL CONSEQUENCES

4.1 AIR QUALITY

4.1.1 Proposed Action

Air quality impacts would not be significant. The emissions and dust from building construction and site preparation activities would have minimal temporary effects on air quality.

An analysis of project generated air emissions was conducted to determine if:

- There would be a violation of a National Ambient Air Quality Standard (NAAQS).
- Emissions contributed to an existing or projected air quality violation.
- Sensitive receptors were exposed to substantial pollutant concentrations.
- Pollutant emissions were equal to or greater than 10 percent of Okaloosa County pollutants emissions.
- Any significance criteria established by the Florida State Implementation Plan (SIP) was exceeded.
- A permit to operate was required.
- A change to the Title V permit or FESOP was required.

Under existing conditions, the ambient air quality in Okaloosa County is classified as attainment for all criteria pollutants.

The primary emission source category associated with the Proposed and Alternative Action is construction activities, particularly site preparation. Construction would generate both combustive emissions from heavy equipment usage and fugitive dust (particulate matter) emissions from ground disturbance from land clearing, ground excavation, and cut and fill operations. Fugitive emissions would be greatest during site clearing and grading activities and would vary from day to day depending on the amount of land being worked, the level of construction activity, the specific operations, and the prevailing meteorological conditions.

Emissions were estimated using the Urban Emissions Model (URBEMIS) 2001 for Windows, version 6.2.2. For the Advanced Energetics buildings construction, it was calculated that building space would occupy 67,524 square feet, and assumed that all disturbed land area would be approximately three acres, including the area of the buildings, plus additional area required for parking lot and road construction. The model provided estimates of quantities in tons per year of volatile organic compounds (VOCs), nitrogen oxides (NO_X), carbon monoxide, particulate matter (PM_{10}), and sulfur dioxides (SO_2). The model considered emissions generated from site grading, construction worker vehicle operations, stationary equipment, gas and diesel mobile equipment and architectural coatings. Table 4-1 summarizes the modeled total emissions for the Advanced Energetics buildings construction project compared to Okaloosa County emissions.

Table 4-1. Total Emissions for Construction Activities

	Emissions (tons/year)[b]				
Pollutant Emission Source	**CO**	**NO_X**	**PM_{10}**	**SO_2**	**VOC**
Okaloosa County[a]	91,359.85	8,709.06	3,756.45	405.48	11,957.66
Project Construction	0.08	23.3	1.46	1.81	2.77
Percent of Okaloosa County Emissions	.00009	0.27	0.04	0.47	0.023

[a] FDEP, 2002
[b] CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter with an aerodynamic diameter equal to or less than 10 microns
SO_2 = sulfur dioxides
VOC = volatile organic compounds

In accordance with Section 176(c), USEPA promulgated the General Conformity Rule that is codified at 40 CFR 93, Subpart B. The Conformity Rule only affects federal actions occurring in nonattainment (does not meet national ambient air quality standards) and maintenance areas (nonattainment area reclassified to attainment status and under a maintenance plan). Since the Proposed and Alternative Action is located in an attainment area, the Air Force will not need to prepare a conformity determination for the Proposed or Alternative Action in Okaloosa County.

Even though a conformity determination is not required, the federal action must still comply with the conformity requirements of Section 176(c); that is, the federal action may not exceed the threshold and criteria outlined above. Therefore, the impact analysis used the 10 percent criteria found in the conformity rule to assess possible air quality impacts. For impacts screening in this analysis, a more restrictive criteria than found in the General Conformity Rule was used. Rather than comparing emissions from project activities to 10 percent of regional inventories, emissions were compared to 10 percent of Okaloosa County's year 2000 emissions (a more restrictive comparison).

As can be seen from the information presented in Table 4-1, increased emissions are extremely small when compared to the Okaloosa County emissions inventory and are well below the 10 percent criteria described above. Any emission effects would be temporary and would fall off rapidly with distance from the construction site. Due to the short-term effect of construction-related fugitive and combustive emissions and the relatively small area affected, there would be no potential adverse cumulative decrease in air quality associated with construction activities.

4.1.2 Alternative 1

The potential for decreased air quality associated with construction activities under this alternative is the same as under the Proposed Action. The approximate location of the Buildings 1, 3, and 4 would not change. No significant air quality impacts would occur under this alternative.

4.1.3 No Action Alternative

No impacts to air quality would occur under this alternative.

4.2 NOISE

4.2.1 Proposed Action

Daily activities at Eglin AFB contribute noise to the region. Aircraft operations and vehicle traffic constitute the greatest on-going sources of noise in the area. However, during the construction of the proposed buildings, diesel generators, support equipment, and other heavy earth moving equipment will operate on the construction site on a limited basis. Noise resulting from the use of this equipment and other construction activities is addressed below.

Table 4-2 shows SELs associated with typical equipment, in varying operating regimes, considered in the analysis. These SEL values form the basis for the subsequent calculation of time-averaged noise levels emanating from the construction site.

For the assessment of construction noise, an approximate 130,680 square foot "activity area" was designated. This represents an estimation of the approximate area that would contain most of the equipment operation.

Table 4-2. Typical Equipment Sound Levels

Equipment	Sound Level (in dBA) Under Indicated Operational Mode [1]		
	Idle Power	Full Power	Moving Under Load
Forklift	63	69	91
Crane	66	83	87
Dozer	63	74	81
Grader	63	68	78
Diesel Generator	--	76	--

[1] Measured at 125 feet
Source: U.S. Air Force, 1998

The first step in the analysis was to calculate the total acoustic energy that would be generated in the area based on specific equipment, operating mode, and operating time in that mode. These data also provided information on individual equipment items' relative contribution to the total amount of acoustic energy generated on the site. Next, individual equipment was spatially distributed throughout the activity area considering "most likely" areas of operation. This yielded an equipment-weighted contribution to total site acoustic energy at different points throughout the site. With this spatial distribution, it was then possible to calculate a mean and standard deviation for the distribution along an axis running through the site.

These data were then used to normally distribute the total site energy throughout the site. Finally, the normally distributed energy from multiple source points throughout the site was aggregated at a range of points at varying distances from the site edge. This allowed a determination at those points of the total acoustic energy that had emanated off-site from all noise sources.

Table 4-3 shows time-averaged noise levels at a range of distances from the edge of the activity area.

Table 4-3. Calculated Noise Levels Associated with the Proposed Action

Distance From Site Edge (In Feet)	$L_{eq(8)}$ (In dBA)	$L_{eq(24)}$ (In dBA)
100	77.9	73.2
200	72.9	68.2
300	69.9	65.2
400	67.8	63.0
500	66.1	61.3

It should be noted that this assessment is conservative. Noise is attenuated (reduced) as it spreads from its source. Distance, atmospheric conditions (temperature and humidity), terrain, and topography all contribute to the level of attenuation actually occurring. However, depending on specific circumstances, some conditions could counteract others. For example, sloping ground, vegetation, and foliage generally increase the level of attenuation over given distances. However, if the ground is extremely hard and rock-covered, a reflective surface is formed, and the amount of attenuation actually achieved is reduced. Due to the complex and situation-specific interactions of all of these influencing factors, not all were considered.

The prime attenuation mechanism considered in the calculations is spherical spreading. This results in an approximate 6 dBA attenuation for every doubling of distance from the sound source. Other data on attenuation mechanisms indicate that under ideal conditions, atmospheric attenuation could reduce sound levels by up to 2 dBA for every 100 feet of spread, and dense-leafed foliage or grass growing in soft ground could decrease levels by approximately 2 dBA per 100 feet. Since the distances involved in all of the assessments are relatively small, and other conditions exist in the area that could offset the attenuation levels described, it is reasonable to assume that the assessments presented are not significantly skewed by limiting calculations to spherical spreading. Nevertheless, due to the conservative nature of the scenario, actual sound levels emanating off-site would be expected to be somewhat lower than those shown.

Finally, it should also be noted that the areas considered are already exposed to elevated day-night average noise levels (between L_{dn} 60 and 65) resulting from aviation operations. While the noise from construction activities may be noticed while it is occurring, its overall duration would be relatively brief and would not be expected to significantly alter the acoustic environment of the region.

4.2.2 Alternative 1

The potential for noise impacts would be the same under this alternative as under the Proposed Action. The approximate location of the Buildings 1, 3, and 4 would not change. Thus, though noise from construction activities may be noticed while it is occurring, its overall duration would be relatively brief and would not be expected to significantly alter the acoustic environment of the region.

4.2.3 No Action Alternative

No impacts from noise would occur under this alternative.

4.3 SOILS

4.3.1 Proposed Action

Soils at some areas of the proposed construction site are loose and sandy and not particularly prone to erosion, but promote the downward and lateral filtration of water. However, some transport of erodible materials off of the construction site would potentially occur at areas where slopes are steep (e.g. proposed site for the Processing Building), and some increase in of sediments into watersheds or surface waters would potentially result. Stormwater drainage systems north and east of the construction site would receive some increase in sediments. To minimize the amount of soil leaving the construction site, best management practices (BMPs), which are typically used for construction projects on Eglin, would be employed, effectively reducing the risk of increased sediments into the stormwater drainage system. Tom's Creek, a darter stream, is not at risk given the distance from the construction site and the wooded area that separates this creek from the construction site.

Examples of BMPs include erecting barriers (normally silt fences or hay bales) at selected locations around the perimeter of the construction site to prevent sediments from being transported offsite. Given the small size of the project and the use of BMPs, impacts to soil and subsequent effects would not be significant.

4.3.2 Alternative 1

The potential for soil transport off of the construction site would be the same under this alternative as under the Proposed Action. The approximate location of the Buildings 1, 3 and 4 would not change. No significant soil impacts or impacts to surface waters from soil erosion would occur under this alternative.

4.3.3 No Action Alternative

Under this alternative, no Advanced Energetics Buildings would be constructed. No increase in soil erosion would occur.

4.4 WATER QUALITY AND WETLANDS

4.4.1 Proposed Action

Water quality and wetland areas would not be significantly affected by the Proposed Action. No direct modification to surface waters or wetlands would occur and only indirect effects from surface runoff from the construction site are possible. The nearest surface water is Tom's Creek, located 1,280 feet to the northwest. The nearest wetland is located 750 feet to the southeast and is separated from the proposed construction site by a road, a ditch, and a vegetative buffer. Thus, no mechanism for sediment transport from the proposed construction site to this wetland exists. Additionally, soil erosion from the construction site would be minimized through the use of BMPs; thus, surface waters would not receive an appreciable increase of sediments related to this project. Figure 3-3 depicts the location of surface waters, wetland areas, and topography near the existing HERD Facility.

Ground water, located approximately 50-55 feet beneath the land surface, would not be directly disturbed or adversely affected, though potable water consumption may increase with the addition of new buildings and any additional personnel. The increase would not place a significant burden on groundwater resources.

Impervious surface area (roads, buildings, etc) would increase, increasing the amount of water that enters the stormwater drainage system. A Notice of Intent to Use the General Permit for New Stormwater Discharge Facility Construction must be submitted prior to project initiation (FAC 62-25), and the Proposed Action requires coverage under the Generic Permit for Stormwater Discharge from Construction Activities that Disturb One or More Acres of Land (FAC 62-621). Coordination with AAC/EMCE is required to obtain stormwater and any necessary utility extension permits.

Water use and stormwater management practices will be coordinated with John Steele, AAC/EMCE (882-7659). Coordination is required for final building design for stormwater permit determination, installation of backflow prevention devices, spill control and containment plans, irrigation plans and erosion BMPs. Per Air Force Instruction (AFI) 32-1067 11, the proponent should adopt conservation practices such as low flush toilets, low-flow faucets, and aerators for sinks/showers to preserve water supplies and minimize waste.

4.4.2 Alternative 1

The potential for impacts to wetlands, surface waters, and ground water under this alternative is remote. The general location of the construction site under this alternative is the same as that for the Proposed Action. Surface waters and wetland areas are far removed from the Proposed Action such that eroded soils would not pose a risk.

A Generic Permit for Stormwater Discharge from Construction Activities would still be required. This Alternative would not have a significant effect on water quality or wetland areas.

4.5 BIOLOGICAL RESOURCES

4.5.1 Proposed Action

The Proposed Action is located near two inactive RCW cavity trees, but actions occurring on the Eglin Main base are exempt from RCW considerations. Regardless of this exemption, any disturbance would be minimal and not appreciably different from the existing level of disturbance from human presence, aircraft fly-overs, vehicle traffic, and other day-to-day military base operations occurring in the vicinity of the proposed construction site. The Okaloosa darter, a federally endangered fish that inhabits Tom's Creek located about 1,280 feet from the proposed construction site, would not be affected, either directly or indirectly. Increased sedimentation, which has been identified as impacting some darter streams, would not be a factor with the Proposed Action. Offsite sedimentation and soil transport would be minimal due to the small construction area, the natural containment of eroded soils by wooded areas around the proposed construction site, and the use of BMPs. A Section 7 species consultation for potential impacts to federally listed threatened and endangered species is not required.

No sensitive habitats would be affected. Approximately 8.3 acres of Tier I scrub habitat occurs within 1,500 feet of the proposed construction site but would not be affected by construction. Tier I areas, though of high quality, are not considered protected unless designated as a special resource area. The Tier I scrub habitat located near the proposed action is not a special resource area.

Due to the fact that some ornamental landscaping would likely occur in conjunction with the construction of new buildings, some potential for the introduction of exotic or invasive plant species exists. Therefore, Eglin Natural Resources Branch (EMSN) recommends the use of native plant species during landscaping. Coordination with Scott Hassell, Eglin Natural Resources, is recommended to determine the marketability of timber at the construction site.

4.5.2 Alternative 1

Sensitive habitats and species would not be affected under Alternative 1. The potential for impacts are the same for this alternative as for the Proposed Action. A Section 7 endangered species consultation is not required for Alternative 1. The use of native plant species is recommended during landscaping.

4.5.3 No-Action Alternative

No impacts to sensitive species or habitats would occur under this alternative.

4.6 IRP/AOC SITES

4.6.1 Proposed Action

Construction would take place within 300 feet of Point of Interest (POI) site 412, the closest IRP/AOC to the proposed construction site. This site has been classified as requiring NFA. Additionally, no disturbance would result and no impacts to IRP/AOC sites would occur.

4.6.2 Alternative 1

Consolidating the Advanced Energetics buildings into six buildings as opposed to eight would not result in impacts to IRP/AOC sites. The construction location would still be 300 feet away from the closest site and no disturbance to this site would result.

4.6.3 No Action Alternative

There would be no potential impacts to IRP/AOC sites under this alternative.

5. PLANS, PERMITS, AND MANAGEMENT REQUIREMENTS

The following is a list of the plan, permit, and management requirements associated with the Proposed Action. The need for these requirements were identified by the environmental analysis process in this environmental assessment, and were developed through cooperation between the proponent and interested parties involved in the Proposed Action. These requirements are to be considered as part of the Proposed Action and would be implemented through the Proposed Action's initiation.

Plans

- Site Design Plan
- Stormwater Pollution Prevention Plan

Permits

- General Permit for New Stormwater Discharge Facility Construction (FAC 62-25)
- Florida Generic Permit for Storm Water Discharge from Construction Activities that Disturb One or More Acres of Land (FAC 62-621)
- Extension Permits for Electrical Utility Services Connection
- Extension Permits for Water and Wastewater Systems (FAC 62-555 and 62-600).

Management Requirements

Soils/Erosion

A Stormwater Pollution Prevention Plan is required for the Proposed Action. The Stormwater Pollution Prevention Plan and permits must be coordinated through Russell Brown, AAC/EMCE, 882-7660. The plan must outline BMPs, including the use of silt screens and certified weed-free hay bales (to prevent the spread of invasive species), that would be initiated during construction to minimize potential erosion impacts. The construction and maintenance of roads should follow the Eglin AFB Range Road Maintenance Handbook.

Safety

The location of explosives storage areas must be conducted according to Air Force requirements and is subject to Department of Defense Explosives Safety Board (DESB) review and approval under DoD Standard 6055.9-STD.

Water Quality and Wetlands

Stormwater and wastewater permits should be coordinated with Russell Brown, AAC/EMC, 882-7660. Drinking water, irrigation well construction or plans, and backflow prevention should be coordinated with John Steele, AAC/EMCE, 882-7659. All completion reports required by

FDEP must be submitted to AAC/EMCE. Per AFI 32-1067 11, the proponent should follow innovative approaches such as low flush toilets, low-flow faucets, and aerators for sinks/showers to preserve water supplies and minimize waste.

Biological Resources

Eglin Natural Resources recommends native plants for landscaping.

6. LIST OF PREPARERS

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7. LIST OF CONTACTS

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